

***Stegodyphus tibialis* (O. PICKARD-CAMBRIDGE, 1869)
IN CENTRAL INDIA (ARANAEAE: ERESIDAE),
WITH NOTES ON INDIAN *Stegodyphus* SPECIES**

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ABSTRACT

Stegodyphus tibialis (O. Pickard-Cambridge, 1869) is known from 7 localities in India. Here, it is recorded for the first time from Raipur forest in Melghat Tiger Reserve, Amravati District, Maharashtra, Central India. The single collected male specimen is briefly described and photographed. The *Stegodyphus* species recorded from India are reviewed. *Stegodyphus semadohensis* Shivaji, 2013 is synonymised with *Stegodyphus pacificus* Pocock, 1900. *Stegodyphus hisarensis* Arora & Monga, 1992 is misidentified; it does not belong to genus *Stegodyphus* or even to family Eresidae. Now, the Indian *Stegodyphus* species are 4, namely: *S. mirandus* Pocock, 1899, *S. pacificus* Pocock, 1900, *S. sarasinorum* Karsch, 1892 and *S. tibialis* (O. Pickard-Cambridge, 1869).

Keywords: Spiders, Eresidae, *Stegodyphus tibialis*, Raipur, Amravati, Maharashtra, Central India.

INTRODUCTION

In India, 1686 species of spiders of 60 families and 438 genera are recorded (Keswani *et al.*, 2012). Family Eresidae C. L. Koch, 1845 is one of the small families in India. Among the 97 species and 9 genera of family Eresidae in the world, the genera *Dresserus* Simon, 1876, *Stegodyphus* Simon, 1873 and *Eresus* Walckenaer, 1805 comprise more than two thirds of the described species of the family. The 21 species of genus *Stegodyphus* are distributed in Africa, Asia, southern Europe and Brazil (World Spider Catalog, 2015).

There are 6 species of genus *Stegodyphus* recorded from India. They are:

Stegodyphus tibialis (O. Pickard-Cambridge, 1869)

Stegodyphus sarasinorum Karsch, 1892

Stegodyphus mirandus Pocock, 1899

Stegodyphus pacificus Pocock, 1900

Stegodyphus hisarensis Arora & Monga, 1992

Stegodyphus semadohensis Shivaji, 2013

Both the male and female of *Stegodyphus tibialis*, *sarasinorum*, *mirandus* and *pacificus* are known. The other two species, *hisarensis* and *semadohensis*, are known from the female alone. The last two species and *S. mirandus* are only known from India, i.e. endemic species. In addition to India, *S. tibialis* was recorded from Myanmar, Thailand, and China; *S. sarasinorum* was recorded from Sri Lanka, Nepal, and Myanmar; *S. pacificus* was recorded from Jordan, Iran, and Pakistan (World Spider Catalog, 2015).

HISTORY

In India, the first recorded species of genus *Stegodyphus* was *Stegodyphus tibialis* (O. Pickard-Cambridge, 1869). The male of this species was described as *Eresus tibialis* from

“Mysore, India”. Its specific name, *tibialis*, is because of “the tumidity of the tibiae of the first pair of legs” as stated and illustrated by Pickard-Cambridge (1869: 71-77, fig. 70). Simon (1884) confirmed the record of the species and transferred it from *Eresus* to *Stegodyphus*.

Pocock (1900) redescribed the male of *Stegodyphus tibialis* from South India: Mysore and Burma: Minhla (Comotto). He misidentified the female of *S. tibialis* that was not known before and described it as a new species named *S. socialis* from South India: Bangalore (Staunton). This was the first description of the female *Stegodyphus tibialis*. In the same work, Pocock (1900) described the male and female of the new species *Stegodyphus pacificus* Pocock, 1900 from Western India, recorded his *Stegodyphus mirandus* Pocock, 1899 of Bombay from other localities, recorded *Stegodyphus sarasinorum* Karsch, 1892 of Peradeniya (Kandy, Sri Lanka) from India, and presented a key of the four species.

Phanuel (1963) collected 32 females and 9 males of *Stegodyphus tibialis* from the scrub jungles of Tambaram (8-9-1962). He described both the male and female and modified Pocock’s key of Indian *Stegodyphus* species.

Kraus & Kraus (1989) had seen the single male specimen reported by Simon (1884) from Central Burma and stated that it and the type specimen (of *tibialis*) are “undoubtedly conspecific”. *S. tibialis* has been characterized on the basis of a single male, and *socialis* of a single female specimen. In 1963, Phanuel rediscovered *tibialis* males associated with females, and thus described the female of *tibialis* “for the first time”. His descriptive remarks are sufficient to conclude that his female specimens were the same as had been named *socialis* by Pocock. Careful comparison of the type and additional materials demonstrated that *tibialis* and *socialis* are conspecific (Kraus & Kraus, 1989). Kraus & Kraus (1989) examined the material of Pickard -Cambridge (1869), Simon (1884), Pocock (1900), and Phanuel (1963).

Ono (1995) reviewed the literature on *Stegodyphus tibialis* and recorded it from north-western Thailand with illustrations of the dorsal view and palpal organ of his single male specimen.

Yang & Hu (2002) described the male and female of the new species *Eresus daliensis* from China. This species was considered a junior synonym of *Stegodyphus tibialis* by Řezáč et al. (2008: 264) without explanation.

Yang et al. (2008) recorded genus *Stegodyphus* for the first time from China, illustrated both male and female of *Stegodyphus tibialis*, and stated that *Eresus daliensis* is a synonym of *Stegodyphus tibialis*.

Arora & Monga (1992) described the female of the new species *Stegodyphus hisarensis* from Haryana Agricultural University, Hisar (Haryana), India.

Shivaji (2013) described the female of the new species *Stegodyphus semadohensis* Semadoh village, Amravati District, Satpuda, Maharashtra.

Abbreviations used: ALE = anterior lateral eye; AME = anterior median eye; AM-AM = inter-distance between anterior median eyes; CL = cephalothorax length; Diam = Diameter; Fe = Femur; L = length; Me = Metatarsus; Pa = Patella; PLE = posterior lateral eye; PME = posterior median eye; Ti = tibia; TL = total length; W = width. [BMNH, HEC, MCZ, ZMK = abbreviations of collections used by Kraus & Kraus (1989)] All measurements were taken in millimetres.

***Stegodyphus tibialis* (O. Pickard-Cambridge, 1869)**
 (Figures 1-10, Table 1)

Synonyms and taxonomic references (World Spider Catalog, 2015)

Eresus tibialis O. Pickard-Cambridge, 1869: 71-72, pl. 6, f. 70-71 (D♂).

Stegodyphus tibialis Simon, 1884: 343 (N♂).

Stegodyphus socialis Pocock, 1900: 209-210 (D♀).

Stegodyphus tibialis Pocock, 1900: 210 (D♂).

Stegodyphus tibialis Phanuel, 1963: 306-309, pl. 1, f. 1-9 (D♂♀).

Stegodyphus tibialis Kraus & Kraus, 1989: 226-228, f. 199, 208, 218-223; Map 12 (D♂♀, S).

Stegodyphus tibialis Ono, 1995: 158-160, f. 1-3, 22 (♂).

Eresus daliensis Yang & Hu, 2002: 726-728, f. 1-6 (D♂♀; N.B.: considered a junior synonym of *S. t.* by Řezáč, Pekár & Johannessen, 2008: 264, without explanation).

Stegodyphus tibialis Yang, Zhu & Zhang, 2008: 72-74, f. A-M (D♂♀, S).

Material examined: 1 ♂ from Raipur village in Melghat Tiger Reserve village (21°04'39.53"N, 78°58'03.80"E, elevation 301m), Amravati District, Maharashtra State, India. The specimen was without pedipalps (but one palp was preserved in another vial), right legs III & IV without tibiae, metatarsi and tarsi.

Description: Male (Figures 1-2): TL 5.8; CL 3.8, cephalic L 1.8 W 2.5, thoracic L 2.0 W 2.8.

Cephalothorax (Figure 3) crimson red, a black area behind median ocular region in the cephalic region, dense white hairs on the lateral margins of the thoracic region, cephalic region evidently higher than thoracic one.

Eyes: posterior medians (PME) largest, anterior eyes smallest, ALE on protrusions. Eye measurements (diameters and inter-distances): AME 0.12, ALE 0.12, PME 0.20, PLE 0.14, AM-AM 0.12, AM-AL 0.70, PM-PM 0.24, PM-PL 1.12, AM-PM 0.07, AL-AL 1.70, PL-PL 1.36. Chelicerae crimson red, internal edge black, a strong tooth and dense black hairs against fang (Figure 6). Sternum, maxillae and labium crimson red, tips of maxillae and labium white.

Legs dark yellow to brownish yellow, femora dark, segments almost without hairs. Leg I tibia, most of patella, and part of femur with long hairs forming a brush on tibia (Figure 5). Spines only on metatarsi: I with one distal spine, II 4 distal spines, III & IV several spines in two rows along the segment and at distal end. Legs formula I-IV-II-III (Table 1).

Table 1 Legs measurements (mm).

Legs	Fe	Pa	Ti	Me	Ta	TL
I	2.7	1.3	1.8	2.25	1.3	9.35
II	2.1	1.0	1.3	1.6	0.9	6.9
III	1.7	0.9	1.0	1.1	0.6	5.3
IV	2.3	1.15	1.75	1.2	0.8	7.2

Male pedipalp (Figures 7-9) as in Kraus & Kraus (1989).

Abdomen (Figure 4): L 3.2; dark except anterior and posterior ends. Colours of Indian *Stegodyphus tibialis* were described in detail by Pickard-Cambridge (1869), Pocock (1900), Phanuel (1963), and Kraus & Kraus (1989).



Figures 1-2 *Stegodyphus tibialis* (O. Pickard-Cambridge, 1869) male habitus.

1. Dorsal view. 2. Ventral view.

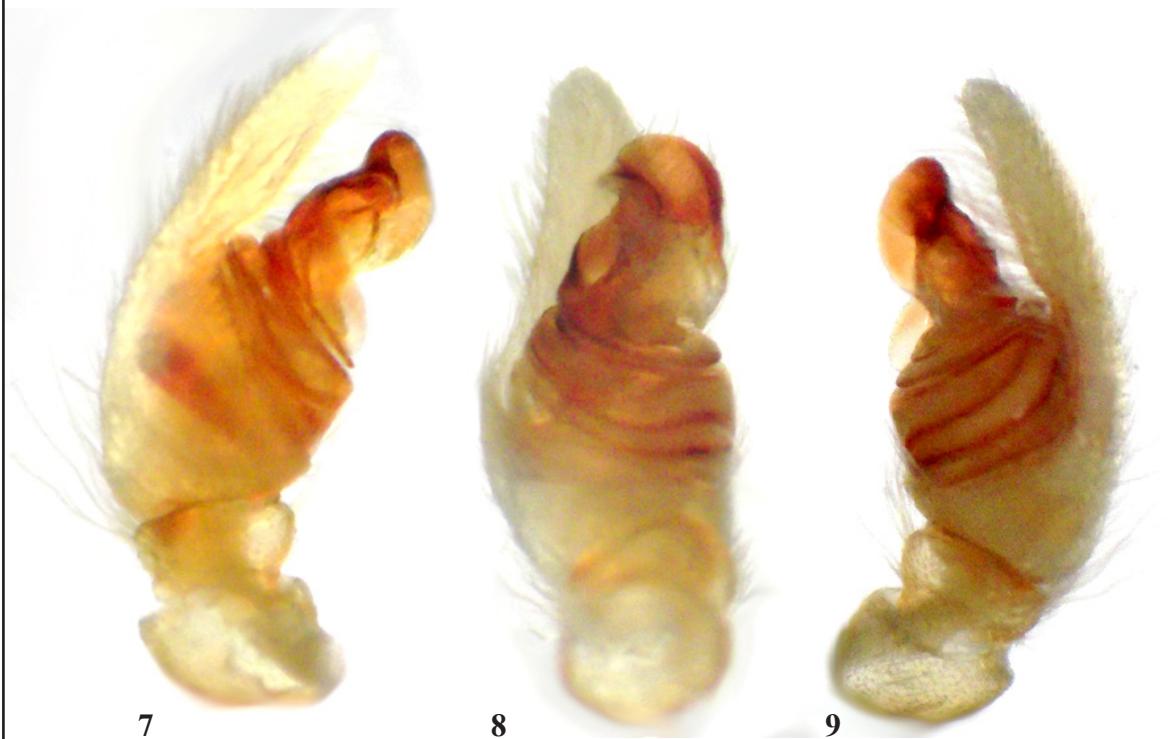


Figures 3-4 *Stegodyphus tibialis* (O. Pickard-Cambridge, 1869) male.

3. Cephalothorax, Dorsal view. 4. Abdomen, Dorsal view,



Figures 5-6 *Stegodyphus tibialis* (O. Pickard-Cambridge, 1869) male
5. Leg I, lateral view, 6. Left chelicera, posterior view.



Figures 7-9 *Stegodyphus tibialis* (O. Pickard-Cambridge, 1869) male palpal organ
7. Prolateral view. 8. Ventral view. 9. Retrolateral view.

Proportions and ratios derived from measurements in comparison with those of Kraus & Kraus (1989) within brackets:

L prosoma : W prosoma anteriorly 1.52 [1.5]
L prosoma : max. W prosoma 1.36 [1.4]
Diam. PME : Diam. AME 1.67 [1.6]
W PME : W AME 2 [1.6]
W PLE (% of W ALE = 100%) 80% [77%]
Relative L of legs 130 : 96 : 74 : 100 [129 : 92 : 73 : 100]
L leg I : L prosoma 2.46 [2.6]

Distribution of *Stegodyphus tibialis* in India (Figure 10)

Stegodyphus tibialis is already recorded from India, Myanmar, Thailand, and China (World Spider Catalog, 2015).

Previous records in India

Kraus & Kraus (1989) recorded *Stegodyphus tibialis* from 7 different localities in India:

- Poona District (2♀ pre-epig ex BMNH 99.9.21.300-19 + 99.12.5.1-20; Wroughton leg.)
- Mysore (1♂ Holotype HEC 125) [Pickard-Cambridge (1869)].
- Bangalore, Lal Bagh (1♀ Holotype of *socialis* BMNH 99.12.9.1; Staunton leg.) [Pocock (1900)].
- Madras, Jalarpet (1♀ BMNH 1902.12.3.30; Staunton leg.).
- Madras, Tambaram, from scrub jungles (9♂ 32♀ Phanuel publ. 1963) [Phanuel (1963)].
- Coonor, Nilgiris (1♀ pre-epig. ZMK; Sherriffs leg.).
- Nadu, 5 km W Rajapalayam, Ayyanar Falls, 390 m (1♀ MCZ; Eberhard leg. XI. 1979).

These localities were plotted on Map 12 by Kraus & Kraus (1989: 251) and the following list includes their current names and their longitudes and latitudes according to Google Earth (online):

- Poona District = Pune, Maharashtra (18°31'17.10"N, 73°51'28.03"E, elevation 590m)
- Mysore = Karnataka (12°17'44.66"N, 76°38'21.51"E, elevation 750m)
- Bangalore, Lal Bagh = Lal Bagh Botanical Garden (12°56'59.57"N, 77°35'07.94"E, elevation 909m)
- Madras, Jalarpet = West of Chennai (formerly Madras), Jalarpet, Tamil Nadu (12°34'00.05"N, 78°34'59.78"E, elevation 415m)
- Madras, Tambaram = Tambaram, Chennai, Tamil Nadu (12°55'22.61"N, 80°07'39.21"E, elevation 36m)
- Coonor, Nilgiris = Coonoor, Tamil Nadu (11°20'55.15"N, 76°47'36.19"E, elevation 1809m) & Nilgiris, Tamil Nadu (11°26'41.93"N, 76°41'14.82"E, elevation 2205m)
- Nadu, 5 km W Rajapalayam, Ayyanar Falls = Rajapalayam, Tamil Nadu (9°27'08.40"N, 77°33'14.40"E, elevation 168m)

New locality

The examined male *Stegodyphus tibialis* was collected from Raipur village (21°04'39.53"N, 78°58'03.80"E, elevation 301m), Amravati District, Maharashtra State, Central India.



Figure 10 Distribution map of *Stegodyphus tibialis* (O. Pickard-Cambridge, 1869) in India
Black circles = previous records in literature, Red circle = new record from Raipur, Amravati District, Maharashtra State, India.

Notes on two other *Stegodyphus* species recorded from India

Stegodyphus hisarensis Arora & Monga, 1992 ♀ India

Arora & Monga, 1992: 139, f. 1-3 (D♀; N.B.: misplaced in this genus, per Siliwal, Molur & Biswas, 2005: 2006).

Stegodyphus hisarensis was described as a new species from Haryana Agricultural University, Hisar (Haryana), India by Arora & Monga (1992). Siliwal *et al.* (2005), in their updated checklist of Indian spiders, stated that "On referring to the original description of *Stegodyphus hisarensis* by Arora & Monga (1992) it is clear that this species is misplaced in the genus *Stegodyphus* as per the description and illustrations given in the paper. Until further study of type specimen is made, we categorize *Stegodyphus hisarensis* Arora & Monga, 1992 as *incertae sedis*". Indeed, it is obvious from figures 1-2 of this species that the illustrated spider is a crab spider, Philodromidae or Thomisidae (?). The figures of *Stegodyphus hisarensis* prove that it does not belong to *Stegodyphus* nor to the family Eresidae.

Stegodyphus semadohensis Shivaji, 2013 ♀ India

Shivaji, 2013: 109, 1a-d (D♀).

This species was recorded from Semadoh village, Amravati District, Satpuda, Maharashtra, India by Shivaji (2013) who described and illustrated a female specimen as a new species comparing between it and *Stegodyphus mirandus* Pocock, 1899. The comparison between these illustrations and those of other *Stegodyphus* species in the revision of Kraus & Kraus (1989: Figs. 132-138) elucidates that *Stegodyphus semadohensis* is a synonym of *Stegodyphus pacificus* Pocock, 1900.

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